Fashion and Deformity in the Feet.

See page 135.

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HEALTH

A WEEKLY JOURNAL OF

DOMESTIC AND SANITARY SCIENCE.

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EDITED BY DR. ANDREW WILSON, F.R.S.E. &C.

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IF such illusions occur, marked instances of them should be found among the insane. Two cases are cited, the one of a young girl whose lover (so she says whenever anything happens) predicted everything to her —her removal to another asylum, a change of physicians, and so on. The other case is that of a young man who believes that all the events of asylum-life have been told to him in a previous conversation. The news of the day is similarly anticipated. An interesting point in this case is, that the patient tells that when these (imaginary) conversations occur, he pays little attention to them, but when the real occurrence takes place, he vividly remembers the former conversation. His memory for real events remains quite good. Now that attention has been called to the possibility of such illusions, normal instances of them should be forthcoming.

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IN speaking about lead-poisoning from drinking water, Dr. Thomas, of Sheffield, lately made the following important observations regarding the effect of water on lead pipes. His remarks are well worth being borne in mind by the public at large:—You are aware, said Dr. Thomas, that water generally contains a certain amount of carbonic acid. This acid acts upon the inner surface of the pipe, forming an insoluble internal coat of oxycarbonate of lead, which effectually prevents the water from further acting upon the pipe. Hence old pipes which have been down for years are far less dangerous than new ones. Water which contains lime salts, as the carbonates and sulphates, also assists in forming an internal insoluble coat, as the carbonates and sulphates unite with the lead. New pipes are apt to be acted upon by the oxygen which the water contains; a soluble oxide is formed, which contaminates the water. The nitrites, nitrates, and chlorides found in water contaminated by sewage are very injurious, as they dissolve the lead; so also peat and other vegetable matter have a similar deleterious effect.

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THE Sheffield water from a certain source is acid, and most certainly dissolves the lead. The water in other towns has had a similar effect upon the lead. For some time the inhabitants of Keighley suffered from plumbism, as we do now, from drinking water. Mr. Jarmaine, of Huddersfield, recommended the authorities of Keighley to use limestone to counteract the acidity of the water. This was placed in conduits, and the water was allowed to pass over it. They have found at Keighley that it has been necessary occasionally to add quicklime to aid the limestone, especially in summer, when the water is scarce. This plan, which has been adopted at Keighley and found to succeed, is now being tried in Sheffield, and I trust that it will be equally successful here.

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IT is a matter of vast importance to the town of Sheffield, as the drinking of water containing lead is now giving rise to a great amount of disease and suffering, and also, by inducing a weakened state of system, laying the foundation for other diseases in the future. Although likely to succeed, it is, after all, but an experiment, and I have no doubt that those who have to manage our waterworks will take care that the water, before and after it has been subjected to the action of the limestone, is carefully examined, and that its condition after it has passed through the pipes is taken particular notice of.

Original Essays

"Life is not to live, but to be well."—*Martial.*

SEA-WATER AND SANITATION.

By LAWRENCE S. LITTLE, C.E.

SEA-WATER has long been known as a valuable purifying and disinfecting agent, but it is only within recent times that it has been proposed to convey regular supplies of it to towns for sanitary purposes. It is now, however, rapidly making its way into favour, and, backed up as it is by the testimony of the highest authorities in medicine and in hygiene, it is likely to receive more attention from the general public. A very brief outline of the subject may therefore be of some interest.

The principal ingredients in sea-water, as distinguished from fresh water, are chlorine, sulphuric acid, soda, potash, lime, and magnesia; but in addition to these, determinable quantities of iodine, bromine, silica, phosphoric acid, carbonic acid, boracic acid, oxide of iron, and other substances are found. The composition varies considerably in different localities and at different depths, and the salinity (that is, the quantity of dissolved salts in 1,000 parts of water) varies from 30 to 40. It is not a chemical combination, but a solution of different chemical compounds. Its bases are neutralized by the carbonic acid in the air, and its acids by the carbonate of lime found so abundantly at the bottom; while its enormous mass and continual motion prevent any local differences in its composition from being very apparent.

The chief purposes for which a town supply of sea-water are required are: 1st, Street watering; 2nd, Flushing of sewers and drains; and 3rd, Supplying public and private baths. For watering streets, sea-water has been found preferable to fresh water owing to its humidity, keeping the surface moist for a longer period, and to the peculiar *caking* of the surface which takes place on drying, leaving the roads smoother and firmer than when watered with fresh water; and, consequently, reducing the amount of dust. Only about one-third of the quantity of water is required where sea-water is used. There is no doubt that roads so watered last longer than when fresh water is employed. It does not seem to be so suitable on very steep gradients, and is of the most service on macadamised roads. In all the towns where sea-water is used for street watering, it has been found to give general satisfaction, even where considerable outlays have been required, and in some cases expensive pumping machinery has been erected for the purpose of raising the supply to the required height.

For flushing sewers and drains it is peculiarly adapted on account of the disinfecting and antiseptic properties of its saline constituents; and it will be found that sewers regularly flushed with sea-water can be kept sweeter than when fresh water is used. It is certain that any reasonable amount of money will be well spent on such a supply for the two purposes already mentioned, as the cost will be more than counterbalanced by the increased health and comfort of the community; but the actual expense can be reduced to the minimum by providing for the supply of public and private baths.

For warm baths, sea-water is strongly recommended by most medical men, and, were proper facilities afforded, there is very little doubt that householders would avail themselves of the opportunity of introducing it into their dwellings for this purpose, or, otherwise, patronise properly equipped and conducted public baths

provided with a supply. The revenue derived from this source would considerably reduce any small rate which might be required.

The first matter to be considered regarding a supply of sea-water is, of course, the question of cost; and the expense of securing such a supply depends upon—1st, The height to which it is necessary to raise the water; 2nd, The distance to which it is to be conveyed; 3rd, The manner of lifting it to the desired height. The question of raising the water will always be the chief difficulty, as, once the supply is at a sufficiently high level, the mere cost of conveying it to any centre where there is a reasonable demand for it will not be great. It is necessary to bear in mind that the water of the ocean, unlike the generality of fresh water supplies, costs us nothing in the way of compensation to proprietors, mill-owners, &c., and, as a rule, no way-leave is required for the laying of pipes, which are generally laid along public thoroughfares, while the amount of ground required for the necessary tanks, machinery, &c., is, in every case, very limited in extent.

The method of raising the water to the desired height and in the required quantity will be determined, to a great extent, by the position of the town in need of a supply, and the presence or absence of "power," in the shape of streams capable of driving the necessary machinery, or otherwise. Where there is sufficient water power available, the water of the sea may be raised by means of pumps actuated by a water-wheel or turbine, or it may be forced up by an hydraulic ram. Where steam, or other engine power depending on the consumption of coal, is required, it will of course be more expensive. Pumping machinery actuated by steam requires almost constant attendance; turbines must be regularly and carefully, although not constantly, attended; while an hydraulic ram, once properly arranged, will go on doing its work for many months without any but the most trifling amount of attention. Besides this, the hydraulic ram, where suitable for the work, has very few working parts and requires no pumps or other machinery which would increase the friction, and, consequently, reduce the power. Then again, the force developed by the rise and fall of the tide itself might be utilized for the purpose of raising a portion of the water of the sea; but as yet no efficient machine so worked has been introduced. Windmills, and the different forms in which electricity is applied might also, in favourable situations, render valuable service in the work.

Whatever scheme is adopted for raising the water, it is essential that simplicity of all working parts and ready access to them be leading features. The pumps too, of whatever kind, should be in duplicate, so that no stoppage of any long period may interrupt the supply.

The corrosive action of sea-water on the valves and working parts of the necesary machinery is, possibly, greater than in the case of fresh water, but the difference makes no serious addition to the expense of maintaining them in working order if proper precautions be taken regarding filtration, &c.

So long as a constant stream is delivered into the storage-tanks, the water will retain its purity, but should there be any necessity for storing the supply for a lengthened period, or for discontinuing the pumping, it is easy to prevent the water from becoming offensive by introducing the proper plants and animals, in the same way as we do in the case of an aquarium. Indeed, the tanks might, with a little additional outlay, be made most interesting and useful educational establishments in this way, without at all interfering with their efficiency as aids to sanitation.

The rate to be charged for private supplies must, like any other thing of the kind, be ruled by the initial cost of the scheme, and the annual outlay for maintenance; but in no ordinary case of a coast town need it be heavy, and the advantages to be derived from the additional comfort and cleanliness, not to say luxury, will certainly be highly valued by those enjoying them, and will not be willingly given up.

It may be interesting to note further that at Ryde, Isle of Wight, sea-water is said to have been used for thirty-five years for road-sprinkling without any ill effects being perceptible. Of thirty-five coast towns in England, twelve are employing sea-water, two are building works for its complete utilization for streets and sewers, two were adverse to its use on roads, while the remainder held that, from its peculiar properties, about half or one-third the bulk of sea-water was required for roads, as compared with fresh water.

Yarmouth, at an expense of £4,500, has constructed works, where thirty million gallons of sea-water are raised 44 feet high at a cost of 4d. per million. The annual cost to the borough is less than 1d. a pound on the assessment. The borough engineer says that since the use of sea-water was commenced £300 less per annum is spent for flint and gravel, while the distribution of water costs £100 less per year than under the former system. The sewers are also better flushed and cleansed.

At Littlehampton, in Sussex, works for utilizing sea-water are also completed. Hastings, it is said, has spent £9,000 on similar works, and also uses the sea-water as a reserve for fire purposes. Altogether it is evident towns situated by the sea may find in the ocean a full and free supply of water, such as can be used for flushing sewers and for street-watering, and for thus aiding, in no small degree, the preservation of the public health.

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"LIKE BEGETS LIKE."

By DR. E. J. DUNGATE.

NINTH PAPER.

THOSE who believe that the effect of a mother's imagination is not limited to bodily disfigurements, allege that the great courage and ambition of Napoleon Buonaparte were due to the fact that his mother followed her husband through all his campaigns, and endured all their dangers. Only shortly before the birth of the future emperor she had accompanied Claude Buonaparte on horseback in some of his military expeditions. It is thought, too, that the cowardice of James I., and his strong dislike for weapons, and every kind of danger (all so well described in "The Fortunes of Nigel"), were due to the effect that the murder of Rizzio had upon the unfortunate Queen Mary. Previous to the birth of James she suffered continually from anxiety and nervous dread. The Stuart family were by no means lacking in courage; therefore in this respect James was a distinct exception. Obstinacy of temper, however, was hereditary throughout the Stuart family, and very many of their calamities may be traced to this failing.

Children constantly show that they possess the passions of their parents, and it may be often clearly proved that this is not the result of example and imitation. Lord Granville, when speaking of the House of Brunswick, said, "This family always has quarrelled, and always will quarrel, from generation to generation." In Lord Macaulay's "Essay on William Pitt," he says: "Since the accession of George I. there have been four Princes of Wales, and they have all been almost constantly in opposition." Examples may easily be multiplied. Dr. Elam says: "Alexander VI. and his children, the Borgias, were notorious for their crimes; as were also Sextus VI. and his children. . . . . The atrocities of the Farnese family are utterly unfit for record. The Medici were all remarkable for thirst for power and authority; the Viscontis were all cruel and vindictive—they had the doubtful credit of inventing the 'forty days' torture.' The Claudian family at Rome were remarkable for their cruel and merciless dispositions. Amongst its members were Tiberius, Caligula, Claudius, Agrippina, and that inhuman monster—Nero."

Voltaire says, in his "Dictionnaire Philosophique": "The Appii were ever proud and inflexible; the Catos always austere. The whole line of the Guises was bold, rash, factious, full of the most insolent pride, and of the most winning politeness. From François de Guise down to that one who, all alone and unexpectedly, put himself at the head of the people of Naples, they were all—in look, courage, and character—above ordinary men. I have seen full-length portraits of François de Guise, of Balafré, and his son: they were all six feet high, and they all possess the same features—there is the same courage, the same audacity on the brow, in the eyes, and in the attitude." "I have my grandfather's grey eyes," said Lady Hester Stanhope, "and his memory of places. If he saw a stone in the road he remembered it; it is the same with myself. His eye, which was ordinarily dull and lustreless, was lighted up, like my own, with a dull gleam whenever he was seized with passion."

That the craving for intoxicating drinks is inherited is a notorious fact. *Ebrii gignunt ebrios*—one drunkard begets another—says Plutarch. Dr. Elam quotes several important examples. "Mr. J. was an habitual drunkard: his wife also had a *stomach complaint*, for which she took spirits: her medicine was never neglected. Both died confirmed drunkards, *and all the children* did so likewise. They said, 'We can't help it; we inherit a strong love for rum or gin.' One bound himself by a heavy penalty, but after some months' abstinence broke out, saying that the *craving was absolute torture, and he could not help himself*. Mr. B., of Yorkshire, and his wife were scarcely ever sober: the lady died early of *delirium tremens*, but the husband lived long in spite of tendencies. Out of a large family only one escaped the taint; the eldest son, an inveterate drunkard, committed suicide, and all the others came to an untimely end. The only daughter was on one occasion brought home by the police in a state of intoxication. The shock was too great for the old man, and he did not survive it."

It is important to notice in the history of dipsomania, that the result of drinking is always an enfeebled condition of the will. The same thing has been noticed in connection with opium eating. The author last quoted is speaking of the two Coleridges, and remarks that they exemplify this fact in a very striking manner. "The elder was an opium-eater, and writes of himself that, not only in reference to this sensual indulgence, but in all the relations of life, his will was utterly powerless. Hartley Coleridge inherited his father's necessity for stimulant, which in his case was alcoholic, and with it his weakness of volition. Even when young, his brother thus writes of him: "A certain infirmity of will had already shown itself. His sensibility was intense, and he had not wherewithal to control it. He could not open a letter without trembling. He shrank from mental pain; he was beyond measure impatient of restraint. . . . . He yielded, *as it were unconsciously*, to slight temptations—slight in themselves and slight to him—*as if swayed by a mechanical impulse apart from his own volition*. It looked like an organic defect, a congenital imperfection." No wonder then that he writes as follows:—

> "Days pass away, and time's large orbs revolve,
> And every day beholds me still the same,
> Till oft neglected purpose loses aim,
> And hope becomes a flat, unheeded lie."

Apropos of this same subject, we notice in the "Journal of Psychological Medicine," 1848, an address quoted from Dr. Leubuscher, in which he gives the following example: "There is at present in the Hospital of La Charité a tradesman who suffers from deficiency in the power of will. His father attends to his business with great assiduity, but has, besides other peculiarities, the crotchet of going every day, at the same time, to a certain spot in the city, where he turns himself round several times, exhibiting himself with such punctuality that his appearance may be determined to the minute."

Unfortunately there is too much proof to show that criminal propensities are a heritage. As an example of criminal heredity there is the history of "Margaret the Mother of Criminals," with which many people are acquainted. About a hundred years ago Margaret was a pauper in a village on the Hudson river in the State of New York. She received no education, and was never sheltered in a respectable home. As a mother she gave birth to a number of criminals and paupers, who have never ceased to be a nuisance to the country. Dr. Harris says: "In one generation of her unhappy line there were twenty children, of whom seventeen lived to maturity. Nine served terms aggregating to fifty years in the State Prison for high crimes, and all the others were frequent inmates of gaols and almshouses. It is said that of six hundred and twenty-three descendants of this outcast girl, two hundred committed crimes

which brought them upon the court records, and most of the others were idiots, drunkards, lunatics, or paupers."

A propensity for gambling is occasionally a heritage. Da Gama Machado mentions a lady of his acquaintance who was strongly addicted to gambling. She had a large fortune, spent whole nights at play, and died of consumption at an early age. Her eldest son, who resembled his mother in many respects, inherited the same passion for play. Like his mother, too, he died of consumption, and at almost the same age. His daughter, who was very like her father, inherited the same tendencies, and also died young.

The study of the subject of idiosyncrasies will bring to light many curious facts, and there is almost no limit to what might be considered under this head if we use the word as it is commonly used. According to Dr. Hutchison, *idiosyncrasy* means "only that under certain well-known circumstances results peculiar to the individual will certainly occur." Some of these apparent anomalies are mentioned by Zimmerman. One man experiences intolerable anguish on having his nails cut; another cannot bear the touch of a sponge upon the face; another is sick with the smell of coffee, &c.: all these are hereditary. Some cannot touch velvet or chamois leather without a tendency to sickness. In others, the eating of white of egg or mutton will produce nausea. Ipecacuan has a peculiar effect upon some few people, and produces symptoms much like those of hay-asthma. Sir T. Watson says: "I recollect a servant employed in the laboratory of St. Bartholomew's Hospital, when I was a pupil there, who had the peculiar ill-luck to be liable to this affection. Whenever the drug was under preparation he was obliged to fly the place. This idiosyncrasy is not very uncommon. A very small quantity of the ipecacuan dust is sufficient, in such persons, to bring on a paroxysm of extreme dyspnœa, wheezing, and cough, with singular anxiety and great weakness. . . . There are persons who are similarly affected by the odour of cats." Cases have been known where the smell of roses would produce ill-effects, just as the pollen from newly-mown hay does with some sensitive persons. Hence, when Pope says "die of a rose, in aromatic pain," that is hardly a figure of speech.

Johannes e Querceto, who was secretary to Francis I., of France, was obliged to stuff his nostrils with bread (!) whenever any apples were brought to the table. The smell had such an effect upon him that if an apple were brought near him he commenced to bleed at the nose. Lewes, in his "Life of Gœthe," records an idiosyncrasy of Schiller which is somewhat different, except that it was also produced through the medium of the mucous membrane of the nostrils. Schiller always found that the smell of rotten apples was beneficial to him, and he could neither live nor work without it.

In *Lancet* for Oct. 16, 1869, a correspondent says: "I am acquainted with a remarkable case, where the slightest taste of a strawberry sets up what may be designated as serious poisoning. The patient on three occasions has been affected in the same way. Once, on eating some trifle, in less than three minutes failure of the heart's action came on, and prolonged fainting followed. Again, some strawberry jam was tasted merely on the tip of the finger; in a short time the patient was on the floor, perfectly flaccid, but powerless to move, fainting on the slightest attempt to motion. The last occasion was after drinking a glass of champagne. A repetition of the symptoms was so identical as to lead to the presumption that the wine had been flavoured with strawberries. In every instance the fainting lasted quite half an hour, and left the patient weak and languid. The only remedies that promoted restoration were ammonia and brandy, which were taken in large quantities without any feeling of intoxication remaining. There can be no doubt that in this case a single strawberry might cause death.

A dislike to pork is very common. Schenckius (Obs. Med.) relates that a man whom he knew would swoon whenever a portion of pig was placed before him, although it were enclosed in paste. It is recorded also of Marshal Albert that he fainted whenever he saw the head of a boar.

The following is not an example of idiosyncrasy according to the definition above, but it shows that a craving for a particular kind may be inherited. The author of "De l'Hérédité Naturelle" is responsible for the subjoined: "A man in Scotland had an irresistible desire to eat human flesh. He had a daughter. Although removed from her father and mother, who were both sent to the stake before she was a year old, and although brought up among respectable people, this girl, like her father, yielded to the horrible craving for human flesh."

Disgust for some particular kind of food, or injury resulting therefrom, is by no means uncommon as an inherited idiosyncrasy. Darwin mentions that black sheep and pigs are not affected by certain foods in the same way that white ones are. Black sheep can eat a certain species of *Hypericum* with impunity, while the white ones are poisoned by it. A similar thing is averred concerning white sheep in Tarentino, and also white rhinoceroses, both dying from eating a plant which does not poison the animals that are dark-coloured.

In Darwin's "Origin of Species," Chap. I., we have the following: "On asking some farmers in Virginia how it was that all their pigs were black, they informed him (Professor Wyman) that the pigs ate the paint-root (Lachnanthes), which coloured their bones pink, and which caused the hoofs of all but the black varieties to drop off; and one of the 'crackers' (*i.e.*, Virginia squatters) added: 'We select the black members of a litter for raising, as they alone have a good chance of living.'" Dr. Ogle has thrown some discredit on the explanation by showing that a coloured pigment in the nostrils is necessary for perfect smell, and this pigment is almost never absent except in white animals. Probably, then, the black pigs do not actually eat the paint-root, but are warned by its smell to avoid it, and consequently escape the fate which overtakes the white pigs.

A MEDICAL journal states that a few handfuls of common salt thrown daily into closets, and an occasional handful into wash-basins, goes far towards counteracting the noxious effects of the omnipresent sewer gas.

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Personal Health

"Be timely wise;
With health all taste of pleasure flies."—*Gay.*

NERVOUS EXHAUSTION.

THE circumstances of advancing civilization are transferring the combat more and more from the field of physical pre-eminence and operations to that of mental. The requirements of life are becoming altered more and more year by year. The new state will eliminate some, and, as it were, elect certain for its service. The strain is coming and being felt keenly by not a few. What are the headaches, the palpitations of the heart, the hydra-headed forms of dyspepsia, the neuralgias, the wasted bodies and anxious, worn faces of which myriads of our people complain but the story of burdens, alas, too heavy for many to bear. Now, it may be laid down as almost a self-evident truth that those who give little heed to physical culture, be their development of brain what it may, must sooner or later succumb in the race. Men are required with acuteness, deliberation, purpose, and with brains pregnant with originality; but all this is but of passing moment if not accompanied with "staying powers," which mean superlative nutritive functions in the system sometime, somewhere.

An unfortunate sign of the times, perhaps, is the round of praise and recommendation for digestible food. Everyone nearly seems to think the crying need of the hour is for something more and most digestible. A young man goes to his doctor for a peculiar burning sinking feeling in the pit of his stomach, coming in a couple of hours after each meal. Is the need here for something more digestible? Not necessarily so, any more than the converse. If the symptoms disappear with the eating of a little food, and are not relieved with soda, the condition points to something most unnatural in the nervous machinery of the stomach, for the feeling is not the natural sign of hunger in a healthy man. Send this patient into the country, change his mode of life, give him rest, and the bad symptoms will soon abate! The trouble was nervous exhaustion, though but of mild degree.

The man writing at his novel far into the hours of the night may, as we read in *Harper's Magazine* of Wilkie Collins, have a female ghost follow him to bed, and bite a piece out of his shoulder as he enters the bedroom. Mr. Christie Murray once wrote thirty-six consecutive chapters in thirty-six consecutive days, and then he saw a halberdier with an axe, who appeared behind and threatened him. All this is nervous exhaustion of an undoubted type, and what is needed most is the chiefest of all restorers—rest.

A person comes to the physician with pain in the back of the head, dull and heavy. What is it? Only weakness—nothing more! Rest will put it all to rights.

Students, as a class, are prone to palpitation of the heart. Is the trouble organic? It is simply temporary, and due to a nervous system exhausted, and wanting rest.

In all this class of cases drugs can do but little good. They may ameliorate the symptoms, but cannot compensate for want of fresh air and rest, the indispensable requisites to a healthy blood; and what, as Romberg says, is pain but "the prayer of a nerve for healthy blood?" Oil is a great alleviator of pain, but in excess may occasion a troublesome form of dyspepsia. The Antipyrin Tabloids appear to exert a beneficial and curative action in painful affections, and sometimes eradicate the trouble. A little nux vomica is useful to most people undergoing severe nervous strain, and those afflicted with dyspepsia. A proper dose of Bishop's Granular Effervescent Extract of Nux Vomica in water answers well. In the indigestion occasioned by starchy food, Extract of Malt (Kepler) will work efficiently.

NEW USES OF MENTHOL.

AN interesting paper on menthol, and its value in the treatment of consumption and other diseases, says a correspondent, has lately been published by Dr. Beehay, late clinical assistant in the throat department of the Edinburgh Royal Infirmary. Dr. Beehay's paper is an important contribution to medical literature, and does more than any other since the publication of Koch's discoveries to place the treatment of phthisis on a rational basis.

The properties of menthol which render it serviceable in lung diseases are:—(1) Its volatility, which makes possible its direct application to every part of the respiratory tract; (2) its great antiseptic power even in the gaseous state, by which the vitality of the tubercle bacillus or disease germ of consumption is lowered and even destroyed; (3) its anæsthetic power, by which pain is alleviated or wholly removed; and (4) its power of stimulating the blood vessels, and of putting them into a fit condition for maintaining and improving the nutrition of the tissues. In pulmonary phthisis, Dr. Beehay advises that twenty or thirty minims of a 20 per cent. solution of menthol in olive oil be injected into the trachea or windpipe by means of a syringe, devised by himself, and made by Gardener, of Edinburgh. This, of course, must be done by a physician, and is followed by no worse results than some difficulty in drawing breath for a few seconds. The menthol, under the influence of the heat of the body, begins at once to pass into vapour, and so is borne into even the most distant and minute of the bronchioles, and exerts its healing influence on every part of the lungs. Another but less efficacious method of securing the same end is by the use of the respirator, upon which fifteen minims of the oily solution should be dropped, and which should be worn as much as possible both night and day.

Very soon the good effects of this treatment become apparent. The breathing gets to be lighter and freer, expectoration becomes less and less purulent, and finally ceases, cough improves, night sweats diminish, the body gains in weight, and the whole system acquires the vigour and vitality of perfect health. Dr. Beehay tells of a patient whose recovery from phthisis was so perfect that he was able to pass the examination for life assurance at the hands of a well-known expert in lung disease. Of course such results cannot be obtained in the later stages of the disease, when great portions of lung tissue are destroyed, but even in those cases many of the distressing symptoms are alleviated and life is prolonged.

Consumption is not limited to the lungs—it may attack every organ of the body—but it evinces a special predilection for the larynx or organ of voice. In phthisis laryngea, as the disease is then called, the principal symptoms are alteration and gradual loss of voice, cough, expectoration, and difficulty in swallowing. By the aid of the laryngoscope the condition can be fully studied, and the remedy accurately applied. Menthol in oily solution squirted once or twice a day on the affected

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8 & 9, COMMERCIAL-STREET, LEITH, *April*, 1888. **THOMAS AITKEN.**

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part, by means of the laryngeal syringe already mentioned, or blown by means of the insufflator in the form of Beehay's snuff, soon works a striking change in the patient's state—lessening secretion, healing ulcers, and making the whole surface clean and healthy. After even one application the pain is so reduced that swallowing can be accomplished with comparative ease, and thus an improvement in nutrition is made possible.

For full information of the numerous applications of menthol we must refer readers to Dr. Beehay's paper, but one of those is so valuable in the eyes of medical men that it must find a place in this notice. Among the diseases of men few have hitherto been deemed so intractable and so repulsive as ozæna. This is marked by severe headache, and by a fœtor of breath so disgusting as to incapacitate the patient from many of the employments and pleasures of civilized life. All sorts of remedies have been tried, but not one was successful in completely removing the foul stench till Beehay's snuff was invented and applied. This consists of menthol (powdered), boracic acid, and ammonium chloride, in the proportions 1, 2, 3, and has given complete satisfaction to both patients and their associates. The smell and headaches, which frequently last for years, disappear entirely after the snuff has been employed for two days.

Of course the remedy must be properly used and continued for a considerable time. Dr. Beehay recommends that a pinch of the snuff be taken at least twelve times a day, and that the nose be not blown for a few minutes. By this method the nose is cleansed and disinfected so thoroughly that the stinking aroma and the headaches which it causes are both dispelled.

A LITTLE Virginia darkey, named Cyrus, had an old brother, Cassius, who had spent a winter in Washington in swell society, and when he returned home he set himself up as a teacher to his less-cultured family. One day at the table Cyrus said to him: "Give me some 'lasses, Cash." "You mustn't say 'lasses,' Cy, corrected Cassius; "you must say *mo*lasses." "Ugh!" grunted Cyrus, "how's I gwine to say *mo'* lasses when I hadn't had none yit?"

DANGERS OF INSUFFICIENT VENTILATION.—One of the great evils of civilization lies in the crowding together of large numbers of persons in confined spaces. This is especially the case with schools and with factories, but is not limited to those instances. It has always been known that such crowding was unhealthy, but the exact amount of evil resulting is necessarily difficult to estimate. Very recently Brown-Sequard has proved by actual chemical analysis that the air expired by a healthy person contains a poison, not a microbe, but a distinct chemical poison. In factories, as usually arranged, there must inevitably be much evil done by the breathing of other people's breaths all day long, six days in the week, Brown-Sequard considers it a principal cause of consumption. The only remedy lies in effectual ventilation, and there can be no doubt that in factories, schools, and all other places in which many persons live and work or study in confined space, the ventilation should be much better than it is. In some factories the air is so bad that persons unaccustomed to it are rendered faint. What, then, must be the effect on those who live in it? I would wish, therefore, to appeal urgently to those who have the direction of schools and factories to introduce really effective ventilation. They have the health, even the lives, of large numbers in their charge, and cannot escape this great responsibility.

The Family Circle

"The child is father of the man."—*Wordsworth.*
"In bringing up a child, think of its old age."—*Joubert.*

FASHION AND DEFORMITY IN THE FEET.

By ADA H. KEPLEY.

SECOND PAPER.

THE diseases most common to the feet are corns, bunions, calluses, enlarged and stiffened joints, stiff and wasted toes, overlapping and underlapping toes, in-growing nails, caries of the bone, exostosis of the toe-bones, onyxitis of the toes, flat-foot, club-foot, ulcers, malignant and fibrous tumors, dislocations, changes in the shape of the bones from pressure, and elephantiasis. All wounds, injuries, and diseases are extremely liable to take on erysipelatous and scrofulous conditions, which speedly endanger life through their inflammatory, gangrenous, or debilitating nature; fatty degeneration of the tissues may take place, and weakness of the joints and thickening of the ankles plague their owners.

Corns consist of hardened flesh that becomes thorn-like in its shape and density, and a dismal source of pain. "A corn," says a writer, "is really a wicked demon, incarnated in a piece of callous skin. Its mission is to distress and agonize humanity and increase its wickedness." Gross says, "A bunion is a corn on a large scale," and he and other writers agree that it is caused by a diversion of the great-toe from its line with the arch of the foot. When the toe is thus diverted, it forms an angle on the foot, which the shoe irritates and makes callous; inflammation sets in, and suppuration frequently ensues, that, in extreme cases, may make necessary amputation of the foot or feet.

Fig. 5 represents the foot of a young woman who wore high-heeled, narrow-soled shoes, which must also have been too short.

Figures 6 and 7 represent forms of bunion complicated with under and over-lapping toes.

Fig. 8 shows a deformity of the foot resulting from inflammation of the metatarsal, phalangeal, or great-toe joint.

Fig. 9 shows an apparatus for the cure of bunions. Its object is to draw the great-toe back into line with the great arch of the foot. Erichsen says, bunion is

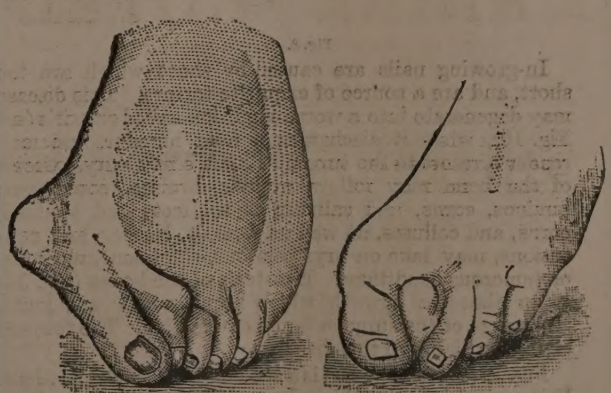

FIG. 5. FIG. 6.

caused by improperly cut shoes, and adds that to cure it the foot should be put in a shoe cut straight from heel to toe at the inner line of the sole. The toes are

naturally quite flexible. Cases are well known of men and women who, being devoid of hands or fingers, have learned to use the feet and toes instead. Miss Biffin, of London, became expert as a portrait painter; another woman used scissors to cut out all sorts of figures from

Fig. 7.

paper; and men have been fully as capable with their toes. The Chinese and Hindoos are said to be able to pick up the most delicate objects with their toes. Yet in most feet the toes are wholly incapable of independent motion, while in many feet they are entirely stiff, and are distressing objects to look at.

Fig. 8.

In-growing nails are caused by shoes which are too short, and are a source of exquisite torture. This disease may degenerate into a worse condition called onyxitis (see Fig. 10), when it discharges a fetid humour, and may render a resort to the surgeon's knife a necessity. Caries of the bone may follow wounds, bruises, contusions, bunions, corns, and calluses of the feet; and bunions, corns, and calluses, as well as wounds, bruises, and contusions, may take on erysipelatous, scrofulous, ulcerous, or tumorous conditions. Exostosis of the bones (Fig. 11) is an abnormal growth which requires the saw, knife, and gouge of the surgeon for its extirpation. The toes are especially liable to this disease.

Fig. 12 (see next paper) is a specimen of splay or flat-foot. It is caused by a breaking down of the arch of the foot, whereby locomotion becomes painful and sometimes impossible. Impairment of the general health accompanies it; in its worst forms a partial displacement of the bones occurs, the toes turn up, and the sole grows convex, while the ankle is very likely to thicken and lose strength by fatty degeneration. It is most common among youth. Some writers attribute it to "vicious eversions of the foot in attempts at polite walking;" by others it is attributed to overwork. It is most common among the children of the wealthy classes. Old people are subject to it from a breaking down of the tissues with age. For its cure local means must be used, and special attention given to the general health.

A disease called elephantiasis, sometimes necessitating amputation of the whole limb, may result from injuries to the foot. A case of this sort is found in the books, where a dislocation of the foot, caused by drawing off a boot, induced the disease.

It is now time to consider defects in shoes, by which most of these diseases may be provoked or aggravated.

Dowie, who was a practical as well as theoretical shoemaker, and so full of enthusiasm that he studied the foot under skilful anatomists, and sent all his journeymen to a course of lectures on the feet, enumerates as the principal evils, that shoes are worn too short; that they are cut too narrow at the toes and in the sole; that the soles do not conform to the shape of the inner curve of the foot, nor to the line of the great arch or instep and the great-toe; that at the waist, or middle, the sole is too stiff and unyielding; that the toe is vertically too shallow, or "wedge-toed," as he calls it; that the heel is too high; that the sole turns up too much at the toes. He and Camper agree on these points. The evils attending shoes too short will be more readily perceived when it is understood that the foot is lengthened in walking, and more in running and jumping.

The degree of elongation depends upon the shape of the foot. Long, slim, high-arched feet elongate most; short, fleshy feet least. In the first case the elongation varies from one-fourth of an inch to one inch. It takes place forward and back, and the shoe should be long enough to allow for it. It is produced by the flattening of the arch of the foot, when the weight of the body falls upon it;

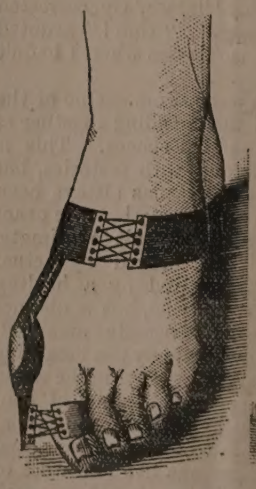

Fig. 9.—APPARATUS FOR THE TREATMENT OF BUNIONS.

Fig. 10.—ONYXITIS OF THE GREAT TOE.

just as a carriage-spring elongates under pressure. The shoe which is just long enough when the foot is at rest, becomes too short when the elongation takes place, and the toes rise, as shown by the dotted lines in Fig. 13, (see next paper) preventing them from forming the firm pier which the anterior portion of the arch of the foot should have to rest upon, diminishing the elasticity of the

organs, impairing their muscular force, and inducing the formation of corns through the rubbing of the toes against the leather. The weight of the body also crowds the toes up, and, turning the great-toe out of place, unfits it for its useful function. In-growing nails are caused by short shoes. An old poet says—

"The shoe too short, the foot will wring;

and an old English couplet sums up the height of aggravating misery in these lines:

"Here's to our friends; as for our foes,
We wish them *short shoes*, and corns on their toes."

Narrow-toed shoes aggravate the abnormal position of the great toe, and cramp the other toes closely together, stopping all their free and healthful motion.

Narrow soles cramp the whole foot; calluses, corns, stiff and inelastic joints, and waisted muscles follow. The distress endured by a fleshy foot in a narrow shoe must be felt to be appreciated. If shoes are not cut "rights and lefts," they do not conform to the shape of the foot, and keep it in a continuous strain, exercising also a tendency to break down the supporting arch. The foot, thrown out of position, falls too far to one side or the other, and we have "running down at the heels," and vicious inversions of the foot in walking.

Tight shoes impede the circulation, deprive the feet of the warmth they need, and ultimately cause waste of the tissues. A friend of the writer, a strong, vigorous man, in splendid health, nearly lost his life from congestion induced by an hour's wearing of a pair of tight boots. Of shoes too stiff at the waist or middle, Dowie says, "Rigidity of this portion of the foot-covering is particularly destructive of the muscles of the foot and leg, for it interferes almost entirely with the free play of the whole foot."*

"Wedge-toed shoes call for some preliminary remark. If one examines the ends of the fingers, it will be seen that they have a fleshy protuberance; the toes have this in common with the fingers, and its office in both is to make a soft, cushion-like protection for the bones. A wedge-toed shoe, such as is seen in Fig. 14, forces the toes immovably into a close envelope that crowds this cushion away from the bones, and wastes it to such an extent that the bones, lacking its protection, become diseased often to a degree requiring surgical treatment. The dotted lines in Fig. 14 indicate how the evil might be mitigated by giving a fullness in the upper leather. Take a round and narrow wedge-toed shoe, and let it be short as one may generally see them worn, and you have an instrument of torture that is little short of the famous iron boot of the past ages.

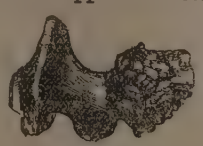

Fig. 11.—Exostosis of the Bone.

"Box-toes" possessed the virtues of giving room for the extension of the foot, and saved their wearers from the torments of "wedge-toes," but they had other defects, and are now almost out of use.

High heels augment all the injuries and miseries we have enumerated. The foot on heels is in the position it occupies in going down-hill, or down the roof of a house, a most insecure and unstable one. The weight of the body is thus thrown forward, the centre of gravity is shifted, and the weight becomes unequally distributed among the different parts of the foot, and the forward portion has to do the bulk of the work. The inevitable detriment such a condition entails upon the health of the foot and of the body does not need to be enlarged upon. Additional inconveniences resulting from it arise from the liability of the body to fall from its unstable poise, and the propensity of the narrowly pointed heels to catch in any little crack or opening, and trip up the wearer. Of these evils the awkward, tottering gait produced by high-heeled shoes is visible evidence.

The centre of gravity of the body falls directly on the angle produced by the lines A and B in Fig. 15, which shows the foot at rest in its normal condition on a level surface; the line A falls inside the outline of the foot, whereby the harmonious relations of each portion of the foot are indicated. Figs. 13 and 16 represent the foot as in position upon high-heels, 13 being rather exaggerated, but 16 little higher than the average heel. A glance will show that just as the heel is elevated, the line A is thrown outside of the outline of the foot, disturbing the relation of its parts, throwing the weight of the body unequally upon it, and thereby seriously interfering with its functions.

* This is the prolific cause of the homely spindle-shank, which he says marks the English labourer in his wooden solid shoe. Dowie cites the Irish labourer, who goes barefoot, and has a splendid muscle in his calf, as a sample of what free play of the foot will do for the improvement of the leg.

"Guide to the Health Resorts of Australia, Tasmania, and New Zealand" is the title of an excellent little manual, published in London by Ballière, Tindall & Cox. To visitors to the Antipodes, and especially to those who voyage thither intent on regaining health, this volume will prove exceptionally useful.

Magazines for June.—*Harper's Magazine* for June contains a second instalment of the interesting paper on "London as a Literary Centre," and gives accurate portraits of Mr. James Payn, Mr. Christie Murray, Mr. F. W. Robinson, and other novelists. Readers of fiction will feel interested in learning something of the men and women who weave the stories which delight their leisure hours. The *Season* for June is, as usual, full of fashion-plates and other information useful to ladies. This is a most excellent magazine of its class.

Tinned meat is most economical when eaten cold, or mixed with potatoes and warmed. Good Australian meat is eaten with greater relish, as a regular diet, when the palate is accustomed to it. It is not easy to tell whether the gravy is not as palatable as that from prime English joints. There may always be some preference for fresh gravy, but the palate is so little offended by the cheaper fluid that the difference ceases to be noticed, and is not thought of unless the attention is purposely drawn to it.

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"Isabella Thwaites."

Public Health

"Health is the first Wealth."—*Emerson.*

CONSUMPTION AND COWS' FLESH AND MILK.

DR. LITTLEJOHN, of Edinburgh, has prepared the following report for the Board of Supervision of Scotland. Tubercle in the cow, Dr. Littlejohn says, has only of late years attracted much attention. Recently the discovery of a bacillus (or germ) in the tuberculous matter in the organs of the cow, especially in the udder, and also its detection in the milk of animals so affected, has led to fresh investigations. These have proved that this disease (similar to phthisis or consumption in the human subject) is communicable from cattle to some of the other animals, and presumably to man, although this has not been established.

Looking to the large annual mortality in man from phthisis and its allied tuberculous or scrofulous diseases, the question of the possibility of the communication of tuberculosis by the milk drawn from animals affected with this disease becomes one of great national importance. As yet, however, no notice has been taken of this disease in any of the Acts of Parliament relating to maladies affecting the lower animals.

Bovine tuberculosis is essentially a chronic disorder, and it may, as in man, last for years before it proves fatal. It may also, as in man, undergo a spontaneous cure. No fact is more remarkable than that there is no disease which is apparently so curable as phthisis. I hardly ever open a body of a person dying from an injury or disease, but traces of the previous existence of tubercle in the lungs are found, and it is apparent that this disease has been arrested, and a cure effected. Similar cases are seen in cattle, but more seldom, as in this country the animal is slaughtered for food before the process of cure can be completed.

Bovine tuberculosis thus differs widely from cattle plague, pleuro-pneumonia, or swine fever—the diseases specially named in Acts of Parliament. These are of an acute character, run a rapid course, and admit of being early recognized, whereas it is often quite impossible to detect the first stages of tuberculosis, so insidious are its advances. The primary symptoms may also easily be mistaken for various other disorders. Ultimately, however, emaciation sets in. This alarms the farmer or dairyman, and the animal is hurried to the shambles before its leanness becomes so marked as to render its carcase unmarketable. In fact, the dairy inspector, in going his rounds, has his attention first of all directed to the affected cow by this emaciation, which leads him to suspect, but only to suspect, the presence of tubercle. There is, however, one part of the animal which unmistakably points to the presence of the disease, and that is the udder. In a certain number of cases, but not in all, the udder is affected, and when this occurs no doubt need be entertained as to the cause of the leanness. It is especially in these cases that the milk is affected, and that the bacillus of tubercle can be detected in it with the microscope.

It is true of both man and of animals, that, in all acute diseases, the secretion of milk is sensibly diminished, and is ultimately entirely arrested. Unfortunately this is not the case with tuberculosis or phthisis; the patient, although emaciated, still continues to supply this secretion in a condition capable of communicating this disease, especially to the young.

It is rare, however, as we have said, that matters are allowed to proceed so far; the dealer or dairyman knows his interests better, and the animal is at once sent to be slaughtered for human food. When the carcase is examined, the usual evidence of the existence of tubercle in the lungs and other organs is amply afforded—the flesh of the animal being, however, in this early stage, rarely so affected as to attract the notice of unskilled persons. It is thus possible by means of trickery—removing the diseased organs and then forwarding the carcase to a saleroom or market—to attempt (too often successfully) to sell the animal as fit for human food. In all parts of the country where the inspection is not strict, and especially where there are no public slaughter-houses, this diseased meat is sold with impunity, and with great risk to the public.

Speaking of the disease and its remedies, Dr. Littlejohn continues: The two questions connected with this disease which have assumed national importance are (1) the limitation of the food-supply from the prevalence of tuberculosis among our herds and dairy stocks; and (2) the risk attending the sale of milk from tuberculous cows.

First. So far as my own experience goes in my bi-weekly examinations at the Edinburgh abattoirs, the disease is largely on the increase, and similar reports come from all parts of the country, and there can be no doubt that in all classes of cattle tuberculosis is now universally prevalent. In all cases except those exhibiting the earliest appearance of the disease, it is the practice of our abattoir inspectors to condemn the animal. But these, brought openly to the abattoir, constitute a small proportion of affected animals. The present state of the law is, unfortunately, so defective that our inspectors have no power to deal with animals in byres or exposed for sale in our public markets, and reasonably suspected to be labouring under this disease. The remedy proposed is to include tuberculosis in the list of diseases specially mentioned in the Contagious Diseases (Animals) Act, 1878. The Privy Council undoubtedly have the power to add the name of any disease affecting live stock; but if that would involve compensation to the owner of the animal and a heavy tax on the ratepayer, it cannot be recommended, as this disease is known to depend largely on insanitary conditions of the byre or cowsheds, for which the tenant and proprietor are directly responsible. Again, the Legislature, by various Acts of Parliament, culminating in the "Dairies, Cowsheds, and Milk Shops Order of 1885," has placed ample powers in the hands of the local authorities of the country for so regulating the sanitary state of dairies and cowsheds as practically to abolish the conditions known to favour the origin and spread of the disease.

As to the *second question*, there can be no doubt as to the risk run by the community by the sale of milk from a dairy containing a single affected animal. Lately, the presence of the bacillus of tuberculosis has been proved to exist in the milk of affected cows, and such milk has been produced in open Court. I am informed by our dairy inspectors, and I am otherwise aware of the fact, that they have no power under any existing Act to interfere and prevent the milk of the suspected animal being sold for human food, much less to order the removal of the animal for examination and (if necessary) for slaughter. Our local Acts are all undoubtedly defective in this respect; but this is hardly to be wondered at when we remember that it is only of late that science has discovered the peculiar bacillus of

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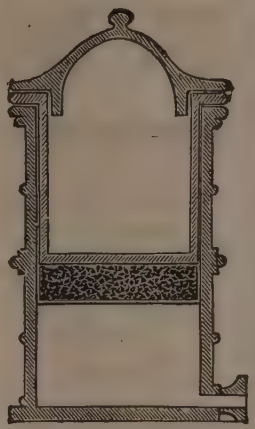

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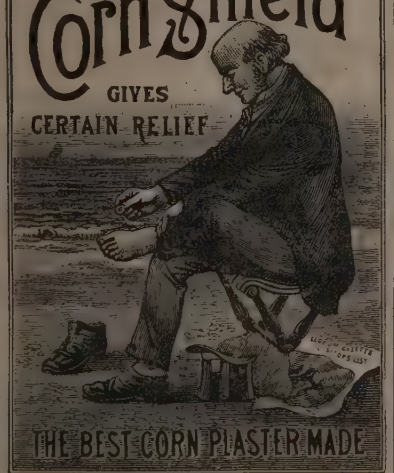

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tuberculosis, and has shown us that it exists in the milk of affected cows.

The latest Government Act is also defective; for while it is provided in the "Dairies, Cowsheds, and Milk Shops Order, 1885," that if disease exists in a dairy among the stock, the milk of a diseased cow is not to be mixed with other milk or sold for human food, the word "disease," unfortunately, is "to have the same meaning as in the Contagious Diseases (Animals) Act, 1878," which, as I have already pointed out, does not include tuberculosis.

I have, therefore, to urge upon the Board (1) the importance of such an enlargement of the definition of the term "disease" in the Contagious Diseases (Animals) Act as to include tuberculosis; (2) the extension to Scotland of the short "Amendment Act," relating to the seizure of diseased animals in open markets, and in byres or cowsheds, which at present only applies to England and Ireland; and (3) the peremptory enforcement of the provisions of the Dairies, Cowsheds, and Milk Shops Order, 1885, with a view to stamping out, by means of improved sanitation, this infectious disease.

Some one who takes time to write sense says: Keep in good humour. It is not great calamities that embitter existence. It is the petty vexations, the small jealousies, the little disappointments, the minor miseries, that make the heart heavy and the temper sour. Don't let them. Anger is pure waste of vitality; it is always foolish and always disgraceful, except in some rare cases, when it is kindled by seeing wrong done to another; and even that noble rage seldom mends the matter. Keep in good humour. No man does his best except when he is cheerful. A light heart makes nimble hands and keeps the mind free and alert. No misfortune is so great as one that sours the temper. Until cheerfulness is lost nothing is lost. Keep in good humour. The company of a good-humoured man is a perpetual feast; he is welcomed everywhere—eyes glisten at his approach and difficulties vanish in his presence. Franklin's indomitable good humour did as much for his country in the old Congress as Adam's fire or Jefferson's wisdom; he clothed wisdom with smiles and softened contentious minds into acquiescence. Keep in good humour.

Small Houses and the Death-rate.—It is those small houses which produce the high death-rate of Glasgow. It is those small houses which give to that death-rate the striking characteristics of an enormous proportion of deaths in childhood, and of deaths from diseases of the lungs at all ages. Their barren air, and poor and penuric feeding fill our streets with bandy-legged children. There you will find year after year a death-rate of 38 per 1,000, while in the districts with larger houses, it is only 16 or 17. Of all the children who die in Glasgow before they complete their fifth year, 32 per cent. die in houses of one apartment; and not 2 per cent. in houses of five apartments and upwards. There they die, and their little bodies are laid on a table or on the dresser, so as to be somewhat out of the way of their brothers and sisters, who play and sleep and eat in their ghastly company. From beginning to rapid ending the lives of these children are short parts in a continuous tragedy. A large proportion enter life by the side door of illegitimacy. One in every five of all who are born there never see the end of their first year. Of those who so prematurely die, a third have never been seen in their sickness by any doctor. "The tongue of the sucking child cleaveth to the roof of his mouth for thirst; the young children ask bread, and no man breaketh it unto them."

Popular Science Papers

"Blessings on Science! When the Earth seemed old,
When Faith grew doting, and our reason cold,
'Twas she discovered that the world was young,
And taught a language to its lisping tongue."
—*Charles Mackay.*

ABOUT CANDY.

By William Sloane Kennedy.

Fully to set forth the changes undergone by a cupful of cane-juice during its conversion, first into a cube of white sugar and then into a musk-lozenge or a lemon-drop, would require volumes. And even then one could not give a complete account of candy-making, for the reason that each skilled confectioner of hand-made candies has—like a painter or sculptor—his own incommunicable touch and methods. Yet a few words will suffice to give a general outline of the toothsome art.

We get our word "candy," not from the Cingalese city of that name, but from the Arabian *quand*, meaning sugar. Now sugar is the crystallized juice of one of the gigantic grasses; candy, therefore, is only boiled grass-juice. As the bee collects from its two and a half million plants the nectar for its pound of honey, so man—a kind of giant bee—extracts from various plants their delicious liquors, which he afterwards turns by his art into that sweet and shining sand called sugar. It was the ancients who called the crystals of sugar sweet sand and gravel—the Sanskrit word *çarkara* (our sugar) meaning gravel. Sugar is made in small quantities, it is true, from the palm-tree, the sorghum-cane, beets, California watermelons, potato-starch, and milk; yet the only kind that is used for the best candies is the clear juice of the Chinese cane, that tall and beautiful purple-striped and straw-coloured plant of Malabar, Assam, Otaheite, Louisiana, and the West Indies, which even more than our *mondamin*, or tasseled maize, deserves the honour of poetical legends and myths.

The sugar-cane, like the domestic fowl, has taken two thousand years to make the circuit of the globe, always faithfully following man along a certain latitude in his westward migrations. From China or Bengal to Persia, Arabia, Spain, Madeira, Cuba, Louisiana, California—such has been its route, until now, facing westward, it may nod a welcome across the great Pacific to the shores of its old home in China and the East Indies.

In the making of candy some "raw" or brown sugar is taken (the best coming from the West Indies), but for the bulk of confections only refined sugar is used. Sugar may be clarified in small quantities by the white of eggs; in the plantation sugar-houses it is refined by lime or lime-water; but, in the great refineries, bone-black or animal charcoal is now used for this purpose, bullock's blood being discarded. When blood was used, its coagulation collected the impurities, which were then skimmed off, together with the coagulated blood. The reason of the immense height to which these refineries are built is that the liquid sugar, having once been raised to the highest storey, may, in its succeeding treatment, which consists chiefly in a series of filtrations (through cloth bags and bone-black), pass down from storey to storey by its own gravity. After the liquor has been passed through charcoal it is boiled to evaporate the water, then crystallized, the molasses or "sugar-drip" drained off, and the residuum of sugar dried in a centrifugal machine.

The philosophy of the action of heat on boiling sugar and water is by all odds the most curious and important matter connected with the making of confections. Put a little water and crushed sugar into a clean brass kettle, and note the changes which ensue when it is placed over a brisk fire. First, when the sugar is dissolved, we have what is called "simple syrup"; continue the boiling a little longer, and the liquor, if cooled, will deposit its excess of sugar on the sides and bottom of the vessel in the form of rock-candy; boil a little longer, and the sugar shows an inclination for the granular condition; longer still, and it forms a thick, pasty, transparent mass; longer yet, and it "caramels," or turns yellow and then brown. This whole series of processes, or states, is technically divided by the confectioner into nine degrees, which form his nine mysteries, his nine points of the law. These degrees are styled the "small thread" and "large thread," the "little pearl" and "large pearl," the "blow," the "feather," the "ball," the "crack," and the "caramel," all of which are produced by a heat ranging from 230 degs. to 260 degs. Fahr. In the thread degree the sugar threads or strings when held up in the air by the fingers; the blow is so called from the workman dipping his skimmer into the liquor, draining it, and then blowing through the holes; if small, sparkling bubbles are seen on the farther side of the skimmer, the syrup is known to be in the "blow" degree; when in the "feather," the syrup hangs from the skimmer like flying floss, and is then said by the French to be "*à la grande plume*"—it is the point of crystallization; in the "ball" degree it makes hard balls when rolled between the fingers; in the "crack" it snaps like a clay pipe-stem—it now tends to grain; the ninth or caramel degree was discovered, or first intelligently noted, by Count Albufage Caramel, of Nismes. The greater part of our candies is made from syrup which has passed the eighth or crack degree (250 degs. Fahr.), and the skill of the artist is shown in bringing his syrup as near as he possibly can to the caramel (260 degs. Fahr.) without permitting it actually to reach that undesirable point; for when syrup begins to caramel, it becomes quickly dark-coloured, froths up and fills the kettle, emits puffs of smoke, and acquires a bitter taste: the sugar is then called "burnt sugar," although it is not really burned.

But it is high time we saw the magician at work. His manufacturing-room may look a little like an alchemist's den, if you choose. Here are large coppered kettles, full of steaming syrup; there men are at work picking up Malaga grapes with a fine pair of nippers and dipping them into creamed sugar; at yonder table one is cutting up a pile of candied figs, and a pile of preserved cherries lies beside him; while still another is sugar-coating almonds in an oscillating kettle. In the middle of the room are low tables covered with marble slabs, on one of which an operator will perhaps be working out stick candy, and on another you may see long, shallow canals, or rivers, of congealing peanut or molasses candy, confined on the slab by long, solid iron bars. Scattered around are the workmen's simple tools — spatulus, strainers, moulds, paste, syringes, and the like. The materials of the candy-maker are equally simple and few, consisting in the main of only three kinds of articles —sugar, flavourings, and colours. The flavours usually employed are the essential oils of various aromatic plants. Mixed with spirits these oils form extracts and essences, the extract being a stronger flavouring than the essence. The extracts of lemon, wintergreen, peppermint, clove, cinnamon, vanilla, and ginger are used in great quantities. Extract of lemon is best prepared fresh by grating the rinds of lemon either with a grater or with cubical lumps of hard sugar, the operator being careful not to get down to the bitter white portion which underlies the outer yellow skin. As to the vanilla vine, the best Mexican pods will, if macerated in alcohol, give a fresher flavour than that of the bottled extract. The colours employed by reputable confectioners are nearly all purely vegetable, and are quite harmless. They are such as cochineal, carmine, saffron, Prussian blue* (a preparation of iron), and the like. For brown, caramel is used, and, mixed with carmine, it forms orange-yellow. To convince one's self of the harmlessness of these colours, one only needs to know that a bit of red colouring-matter the size of a gum-drop will colour five thousand pounds of candy. Cheap candies coloured with poisonous mineral stuffs are annually seized by the New York City health officers. Many French candies used to be coloured, not only with such disagreeable earths as umber and sienna, but with red lead, chrome yellow, and vermilion, all of which are highly poisonous. French confectioners have now, however, not only formed themselves into a national association to protect themselves against unprincipled manufacturers, but they themselves are strictly supervised, being allowed by their Government to use only the following harmless colourings: *Blues*—indigo, Prussian blue, ultramarine; *reds*—cochineal, carmine, carmine lake; *yellows*—saffron, French berries, and turmeric or fustic; *greens*—mixture of above yellows and blues; *purples*—mixture of red and blue. Cheap candies are not only often poisonous, but badly adulterated with terra alba, corn-starch, and starch-sugar or glucose. Cheap gum-drops are made from corn-starch, to which ordinary glue is sometimes added; whereas the best gum-drops are made from gum arabic and cane-sugar. Stick-candy made from glucose may be detected by its lack of sweetness, its yellowish colour, and extreme frangibility. The nuts and fruits used in the cheaper varieties are also of poor quality, being mostly worm-eaten, old, or damaged.

(To be concluded.)

FALLING OUT OF THE EYELASHES. — Just as some of the hairs of the scalp fall out from time to time—and this may be taken as a natural process—the eyelashes may be observed to become detached from the eyelids in varying numbers; this is physiological, and unless caused by some apparent disease of the lids, involving the roots of these hairs, they are replaced in a period of from three to four weeks. The oculist is often asked: "What can be done to promote the growth of the eyelashes and to make them beautiful?" It may be disappointing to have to say that there is no method of accomplishing this when nature has decreed otherwise; but such disappointment will be far less than that which follows as a result of cutting them. A little *white vaseline* applied in very small quantity occasionally may increase the beauty somewhat by preventing excessive dryness; but beyond this *the eyelashes should not be interfered with in any way*. The most frequent cause of diminished beauty of the eyelashes is disease of the eyelids; this always manifests itself by unmistakable symptoms, but, since such disease cannot be treated by the mother, its consideration would be beyond the scope of this article.

* [Prussian blue is not a vegetable colour, and cannot be correctly regarded as "quite harmless." In Battershall's "Food Adulteration and its Detection" it is classed, as a colouring for confectionery, among pigments of a "very objectionable character."—ED.]

Sanitary Appliances, Etc.

PITKEATHLY TABLE WATERS.

About a mile to the west of Bridge of Earn, Perthshire, is situated Pitkeathly, a village which owes a large measure of celebrity to the famous "wells" which represent the natural outflow of mineral waters to the surface. These "Pitkeathly Wells" are believed to be the oldest mineral waters in Scotland in respect of the length of time they have been resorted to for the cure of disease. An extract from a notice regarding the waters by Dr. James Laing may appropriately describe the spring. This author says that: "The primary medicinal effects of the Pitkeathly water are an increased secretion of urine, and an aperient or purgative action on the bowels. It is therefore aperient, diuretic, refrigerent, anti-phlogistic, and, from the presence of iron in the last analysis, gently tonic. Its action in many cases on the kidneys is so direct and rapid, that in little more than ten minutes after the water is taken desire is established, and, if not counteracted, will pass through these organs with incredible rapidity. On the contrary, if desire is restrained, the purgative action is more likely to be secured. Ignorance of this simple fact renders the use of the water in many cases not only perfectly useless as a purgative, but absolutely injurious, by over-stimulating the kidneys and irritating the bladder. A lengthened course of the water is almost never accompanied with those debilitating effects which would infallibly follow the continuance of an equal dose of artificial salts for a much shorter period, or even of what are called artificial mineral waters. This is certainly a very singular fact, for which it is difficult to give a satisfactory explanation, and one which shows, in a more striking manner than any that could be adduced, how far we are yet, notwithstanding the advanced state of our chemical knowledge, from understanding the real secret of the combinations in natural mineral waters. The counteractive to the debilitating effects of the water is very probably due to the presence of iron in minute quantity, which exerts a tonic action on the system, and modifies the cathartic action of the water."

A chemical analysis of the Pitkeathly Water made by Mr. C. W. Heaton in 1876 gives the following substances in the three springs:—Chloride of sodium (with potassium and lithium) (Kilgraston), 77·28; (Dunbarney), 152·03; chloride of magnesium, 16·67; 30·60; chloride of calcium, 165·20; 166·90; sulphate of calcium, 5·31; 6·42; carbonate of calcium, 4·77; 6·37; silica, 0·70; 1·40; ferric oxide, &c., 0·49; 0·28. Totals, 270·42: 364·00. Chloride of sodium (with potassium and lithium) (Clayton), 5·77; sulphate of sodium, 23·33; sulphate of magnesium, 11·75; carbonate of calcium, 6·25; silica, 4·66; ferric oxide, &c., 0·77. Total, 52·53. Regarding these waters, it is added that "the water of the Clayton spring is quite different in character from the others. In addition to notable quantities of the aperient salts, the sulphates of sodium and magnesium, it contains more iron than the others, and is, in fact, employed as a mild tonic. The most remarkable fact about it, however, is the unusually large amount of silica present in it. The presence of lithium in all three waters, found of course by spectrum analysis, is another interesting point, and one which tends to increase their medicinal value. The waters have often been sent to a distance for patients who wished to continue their use after leaving; and now they are sold in bottles, aerated with carbonic acid in the usual way."

The wells are open to the public from May to September, from 6 a.m to 9 p.m. on week days, and the Spa House includes a reading-room, a ladies' private room, and other accommodation for visitors.

For the benefit of persons at a distance, Messrs. Reid & Donald, chemists, 29, George-street, Perth, are prepared to supply Pitkeathly Water, as a table water, in any quantity. Those who desire a pure, exhilarating water, which can be used with spirits, or as a simple undiluted table drink, useful in cases of acidity, gout, rheumatism, and anæmia, will find in the Pitkeathly Water an admirable beverage. For the special benefit of those who for gout and rheumatism desire a specific cure, Messrs. Reid & Donald prepare Pitkeathly Water in combination with Lithia. This latter water may be warmly recommended to the notice of patients. We can testify to the pleasant nature of these waters, and regard the high opinion of them expressed by Dr. Buist, of Perth, as thoroughly deserved.

The London agents for Messrs. Reid & Donald's Pitkeathly Waters are Messrs. Best & Sons, 2, Henrietta-street, London, W.

"Of every true knight in the chivalric ages, the first thing history tells you is, that he never kept treasure for himself."—*Ruskin.*

IMPORTANT ANNOUNCEMENT.

BONUSES TO SUBSCRIBERS TO "HEALTH."

Health, as our readers are aware, may be obtained of all Booksellers and Newsagents, and at the Railway Bookstalls, on the day of publication. It may also be ordered from the Publisher, 2, Paternoster-square, London, E.C., who will send the journal, post free, for a year, on receipt of postal orders for 10s. 10d.

As many of our readers who live in remote districts prefer to obtain Health from the Publisher direct, and as we are desirous of increasing the already large number of subscribers who give us a yearly order for the journal, we take the opportunity afforded by the Commencement of a New Volume to offer the following Free Gifts and Bonuses to all who subscribe to Health for one year or longer:—

(1.) To each Subscriber who remits 10s. 10d. to the Publisher, entitling him (or her) to receive one copy of Health, post free, for one year, we shall present a copy of Dr. Andrew Wilson's work, entitled "A Manual of Health Science" (Longmans & Co.), value 2s. 6d.

(2.) To each subscriber who remits 21s. 8d., entitling him or her to receive two copies of Health weekly, post free, for one year (or one copy for two years), we will present Dr. Richardson's "Ministry of Health" (Chatto & Windus), value 6s. The copies of Health so ordered may be posted to separate addresses.

(3.) To each person who subscribes 32s. 6d., for three copies of Health, post free, weekly, for one year, we will present the volume by Dr. Richardson mentioned above, and also the handsome, illustrated book entitled, "Studies in Life and Sense," by Dr. Andrew Wilson (Chatto & Windus), value 6s.—being a free gift of the total value of 12s.

The bonus last mentioned will also be presented to anyone who succeeds in obtaining three yearly subscribers to Health, and who remits to the Publisher the sum of 32s. 6d., together with the names and addresses of the persons to whom the copies are to be posted each week.

As the literary gifts above-mentioned constitute books containing solid and reliable information regarding health and other matters of popular scientific interest, it will be seen that the above scheme, while intended to increase our already large circulation, also offers distinct advantages to new subscribers who guarantee by their subscriptions a year's support to this journal. All communications regarding subscriptions and other purely business details connected with Health should be addressed directly to the Publisher, 2, Paternoster-square, London, E.C., and *not to the Editor.*

Detection of Adulteration of Lards.—The recent examinations of lards made at the Agricultural Department have resulted in the discovery of a test by which the presence of cottonseed-oil may be detected instantly by any dealer or housekeeper. The experiment is as follows: As much lard as can be taken up on the point of a case-knife is placed in a tea cup. About a quarter of an ounce of sulphuric acid is poured upon it and thoroughly mixed with it. If the lard is pure, it will coagulate, and there will be a little difficulty in the mixing. If it is adulterated with cottonseed-oil and stearine, the mixture will take place immediately and easily. After half a minute, one-fourth of an ounce more of sulphuric acid should be poured upon and mixed with it. The whole process thus far should not occupy more than one minute. The substance thus obtained is poured into a common

test-tube, such as may be bought at any chemist's shop for a few pence. The acid, somewhat coloured, will sink to the bottom, and the fatty substance will remain on top. If the lard thus tested was pure, the colour of the latter will be that of a light coloured sponge, changing in a minute or so to a dark-cinnamon colour. If it has been adulterated with cottonseed-oil, the colour at first will be darker, changing immediately to a dark brown. These differences of colour are so marked that no experience is required to detect them. Cards might be printed upon which the colours produced by the sulphuric acid reaction for both pure and adulterated lards might be shown; and dealers, by using this test, may prove to their customers in a minute or two that the lard that they are selling is an unadulterated article. The experiment is simple, and the cost of it almost nothing. The novel thing about it is the placing of the mixture in a test-tube in which the acid may become separated from the fatty substance, thus making the test much more decisive and satisfactory. This was first suggested by Dr. Thomas Taylor, who has extended his experiments to a great number of different animal and vegetable oils.

Our Letter-Box

"Conference [maketh] a ready man. —*Bacon.*

NOTICES TO CORRESPONDENTS.

All Communications for the Editorial Department (including Books for Review, Specimens of Sanitary Appliances, &c.), to be addressed to "THE EDITOR OF HEALTH," 2, PATERNOSTER-SQUARE, LONDON, E.C. *Those intended for the Publishing Office to be sent to* MR. A. P. WATT, THE PUBLISHER, *at the same address.*

RULES FOR CORRESPONDENTS.

OWING to the mass of letters which reaches us each week, we respectfully direct the attention of Correspondents, desiring replies in the LETTER-BOX DEPARTMENT of HEALTH, to the following rules:—

1. All questions are answered free of charge in the columns of HEALTH.
2. All letters must be legibly addressed to "The Editor of HEALTH, 2, Paternoster-square, London, E.C.," *and to no other address.*
3. Questions to which answers are desired by post, are so replied to solely at the Editor's discretion. If no answer is sent by post, the query will be replied to in the "Letter-Box" columns of HEALTH. A stamped addressed envelope must accompany all queries to which a private reply is desired.
4. Addresses of physicians and surgeons will, as heretofore, be forwarded FREE to Correspondents on their enclosing a stamped addressed envelope for reply.
5. Correspondents are requested to write on one side of the paper only, and to make their inquiries as brief as may be consistent with clearness.
6. From the necessity of sending HEALTH to press early in the week, no Correspondent can be replied to in the "Letter-Box" columns in the same week in which the inquiry is received. Replies crushed out of any issue will be found in the succeeding number.
7. No Post Cards must be used in sending queries. Violation of this rule deprives the sender of the privilege of a reply.

QUERIES AND ANSWERS.

REPLIES: GENERAL, SANITARY, AND MEDICAL.

[Readers of HEALTH will kindly note that when back numbers of the journal are desired, the letters containing such requests and stamps for the numbers should be addressed to the PUBLISHER of HEALTH, 2, Paternoster-square, London, E.C., and *not to the Editor.*]

ÆRATED.—We should not think so. There is no substance in ærated bread likely at all to cause any such results. More probably sudden change of the weather, or some lowness of the system, lies at the root of the ailment. For styes, see advice given to "A. Purdie" in HEALTH, No. 265; and for boils use the following: Sulphide of lime, twenty-four grains; sugar of milk, half an ounce. Mix thoroughly, and keep in a stoppered bottle. Take five grains of the mixture every four hours.

TOM COX.—1. Apply to the French Hygienic Society, 56, Conduit-street, Regent-street, London, W., and try their Eau Lodois. 2. Read, also, the pamphlet recommended to "James L. P." in this number.

E. P. R.—The closet is a defective one—hence arise all your troubles. Replace it by a Twyford's "Unitas," which is the best in the market; simple, cleanly, and not liable to derangement.

ONYX.—No; you are mistaken; it is Symington's Coffee Essence we meant.

BOROUGH-ROAD.—Howie's Filter, advertised in our pages, is that we recommend you to purchase. See advertisement in our pages.

A. PAXTON.—1. Try a wine-glass of Vin Mariani (Messrs. Roberts & Co., Chemists, New Bond-street, London, W.) before your meals, thrice daily. 2. No; we think Woolley's Rose Powder the best.

RUTHVEN.—Try the "Pommade Trichophile" of the French Hygienic Society, 56, Conduit-street, London, W., advertised in our pages. It is an excellent remedy for scurf.

THOMAS MILES.—Try Bayley's Pile Remedy (Pyrmont Tablets and Ointment), to be had at 17, Cockspur-street, Pall-Mall, London, S.W., and make an alteration in your diet. Try the Cascara Cordial as ordered to "Ego" in the present number, as this remedy, along with the diet-hints in advice indicated, will probably tend to relieve the symptoms of which you complain. These are due to digestive disturbance. Try also Vichy Water as a beverage likely to benefit your condition. If not bettered, write again.

J. McL. C.—See advice given to "G. A. P." in HEALTH, No. 265.

AMBULANCE.—Write to the Secretary, St. John's Ambulance Society, St. John's Gate, Clerkenwell, London, for the information

NERVOUS EXHAUSTION.

PULVERMACHER'S World-Famed GALVANIC BELTS for the Cure of NERVOUS EXHAUSTION and DEBILITY, have received testimonials from three Physicians to Her Majesty the Queen, and over Forty Members of the Royal College of Physicians of London.

The distressing symptoms of NERVOUS EXHAUSTION and DEBILITY are speedily removed by means of **PULVERMACHER'S world-famed Galvanic Belts,** which are so arranged as to convey a powerful electric current direct to the affected parts, gradually stimulating and strengthening all the nerves and muscles, and speedily arresting all symptoms of waste and decay.

Dr. VINES, Fellow of the Royal College of Physicians, writes 19th September 1885: "Having used MR. PULVERMACHER'S BELTS for many years, in the course of medical practice, I am in a position to speak of their great value as a curative agent in cases of nervous disease or functional malady where Electricity is likely to be serviceable. I am entirely convinced of their efficacy."

Dr. C. HANDFIELD JONES, F.R.C.P., F.R.S., Physician to St. Mary's Hospital, says: "I am satisfied that MR. PULVERMACHER is an honest and earnest labourer in the field of science, and I think he deserves to meet with every encouragement from the profession and scientific men."

Dr. GOLDING BIRD, M.D., Physician, Guy's Hospital, says: "I can hardly recommend MR. PULVERMACHER'S INVENTION too strongly to the notice of my medical brethren."

For full Price List and particulars, see New Pamphlet, "**GALVANISM: Nature's Chief Restorer of Impaired Vital Energy.**" Post Free from

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GALVANIC ESTABLISHMENT,
194, Regent-street, LONDON, W.

you desire. The same training we believe is given by each society you name.

BIB.—Note advertisement in our pages of the article you name.

OMEGA. —1. Add the malt extract to the bread like butter, certainly. 2. Stimulant and nutritive. 3. Much the same kind of preparation. 4. For a few weeks at most.

VARICOSE. —1. Certainly: a well-fitting stocking should be worn by you. 2. Try the surgical instrument makers opposite the Infirmary in your city. 3. No: they must be properly fitted, and not too tightly. 4. Look to your digestion: avoid constipation, and take more fruits and vegetables in the way of diet. You should sleep and rest with your feet elevated on a pillow.

39.—Use the Cascara Cordial occasionally as ordered to "Ego" in the present number, and adopt a diet in which fruits and Grant's Oat Flour are well represented. For the irritation apply the following lotion to the parts, thrice daily, allowing it to dry on the parts: Powdered calamine (ver), two drachms; powdered zinc oxide, one drachm; glycerine, one drachm; camphor water to make up six ounces. Mix. Label as above directed. If not bettered, write again.

CEBAY.—Wash the parts with Bayley's Spermaceti Soap and tepid water, and dust on the parts after washing Woolley's Sanitary Rose Powder. The latter is an excellent application for excessive perspiration of the hands and feet. In the latter case it should be dusted inside the stockings.

P. G.—1. Try the Pitkeathly Water (advertised in our pages) and drink it as a regular beverage. 2. About two per cent. 3. At Berlin.

JAMES HARDIE.—Try vegetable diet, and take twenty drops Cascara Cordial in water an hour before breakfast as a remedy against constipation. For the rest, use an injection of Quebascho (Brown & Co., 37, Farringdon-road, London, E.C.), adding one teaspoonful of this extract to a tumbler of hot water (allow the water to cool before using), and inject once or twice daily.

E. BINDON.—Take one or two Vichy Pastilles just after food.

GRACE.—Give a wineglass of Mariani's Wine of Coca, twice daily, after the patient's meals.

KING LUD.—Let the patient wash the parts affected night and morning with Bayley's Spermaceti Soap and tepid water; a little ointment (composed of one part iodoform added to ten parts benzoated lard) to be rubbed on the affected spots after washing, once daily.

ALBERT.—The indexes to all the volumes of HEALTH can be procured on application to the Publisher, 2, Paternoster-square, London, E.C.

MAX.—Take plenty of rest, and, as a tonic, try a teaspoonful of Syrup of the Hypophosphites in water, twice daily, after your food.

JOINER.—Try the effect of taking occasionally five drops of Pure Terebene (Burroughs, Wellcome & Co.'s) on a piece of sugar after your food.

JUMBO.—There is no satisfactory way of removing hairs save by electricity. If desired, we can send address of a London specialist on receipt of stamped addressed envelope.

P. G. L.—In your own case, take fifteen drops Fer Bravais in water after your meals, thrice daily, and drink Vichy Water for a time.

IMPY.—For blackheads in the skin, use Pears' Soap; press out the filled-up glands, and sponge the parts thereafter with Bayley's Eau de Cologne.

HIGHTON.—We should certainly advise the patient to begin treatment by taking ten or fifteen drops Cascara Cordial once or twice daily, an hour before food, in water. Let the effects of this upon the constipation be watched, and let the patient eat freely of stewed fruits, whole meal bread, and Scott's Oat Flour.

B. P. R.—Remove the cause, and the effect will cease. Try twenty grains bromide of potash in a wineglass of water on going to bed.

JAMES L. P.—For full information on the subject of your health, and to save you from falling into the hands of quacks, read the pamphlet "A Lecture to Young Men," post free, 1s. 1d., from Mr. Renshaw, 356, Strand, London, W.C.

ETTA.—Apply to the French Hygienic Society, 56, Conduit-street, London, W., for their advice regarding hair-dyes. Try the Pommade Trichophile made by the society just named (see advt. in HEALTH).

PAX.—Use, thrice daily, an injection made by adding a teaspoonful of Condy's Fluid or Wesley's Disinfectant to a tumblerful of tepid water. Take a dose of Lamplough's Pyretic Saline in the morning occasionally.

AURIS.—In such a case try dry treatment. Blow carefully into the ear each morning a little very finely-powdered boracic acid—put no cotton wool into the ear—and internally take the Fer Bravais as ordered to "P. G. L." in the present number of HEALTH. If not bettered, we can send you address of specialist in ear-diseases on receipt of stamped addressed envelope.

SUDDEN DEATHS.

THE CAUSE AND INCREASE OF THESE MYSTERIOUS VISITATIONS ACCOUNTED FOR.

EVERY careful reader and observer must have noticed the large number of sudden deaths which have occurred among the leading men of this country during the past year. Every few days the papers announce that some prominent man whose name is a household word in the community has been instantly called upon to die.

A few weeks ago Mr. Matthew Arnold, while apparently in the best of health, was suddenly stricken down, and in a few hours the world was in tears over the distinguished man's grave.

Admiral Sir Astley Cooper Key, some weeks ago paid a short visit to London, and upon returning home, the next day suddenly expired.

Mr. John Clayton, the accomplished actor, while playing at the Alexandra Theatre, Liverpool, was prostrated by what appeared to be a severe cold, and in a few hours was dead.

These events happening within a few weeks of each other, and occurring to persons who were conspicuous in public life, naturally arouses the attention of the public, and raises the query as to the cause of these sudden deaths.

Heart disease, vertigo, apoplexy, paralysis, and similar complaints *are all effects, not causes.* The real cause is to be found in a weakened condition of the system, brought about by the neglect of some vital organ. Some of the minor symptoms which indicate the beginning of such troubles are: Twitching and convulsion of the muscles, headache, drowsiness, defects of sight and hearing, nausea, persistent hot and dry skin, disturbance of the digestive functions, and sourness of stomach, alternate hilarity and depression of spirits, swelling of the ankles and legs, rheumatic pains in various parts of the body, frequent attacks of vertigo, dizziness, and shortness of breath, distressing backache, and a watery condition of the blood. Any one of these symptoms or more may be manifest, until the human system will, by degrees, become so weakened that when attacked by disease there is rapid and, in many cases, instantaneous development of terrible maladies. Then relief is out of the question, restoration to health impossible, and the patient succumbs to quick and dreaded death.

The highest scientific and medical authorities, who have carefully examined these symptoms, and traced them to their source, seem with one accord to agree that they are due in the majority of cases to a disordered condition of the kidneys. The reason for this can be easily explained. It is the office of the kidneys to remove the surplus water and decomposed matter from the blood. This waste matter is a virulent poison, and is especially injurious to the nerves, producing tumours, paralysis of the heart, and a general weakening of the nervous and muscular system.

These are facts of science and every-day experience, and they conclusively prove what has so often been said that the kidneys are the regulators of the system, and that there can be no freedom from sickness nor hope of continued escape from death when these great organs are the least deranged. There is, however, no portion of the body so difficult to reach, and which doctors so hesitatingly attempt to treat, as the kidneys; indeed, many of the most reputable physicians in the world have declared that organic disease of the kidneys cannot be cured, and many medical men still so declare, admitting that only one remedy has ever been found which is known to completely control these great organs, or restore them when they have once become deranged. That remedy is now known to the entire world as Warner's SAFE Cure, a remedy which has won its way into public favour solely on its merits, and by the remarkable cures it has been the means of performing. Remember this fact, that heart disease, vertigo, apoplexy, and paralysis *are effects, not causes,* and can be prevented by keeping the kidneys in proper condition. It is by controlling these wonderful organs that the ravages of these sudden deaths can be escaped.

Warner's SAFE Cure can be procured of all chemists throughout the world at 4s. 6d. per bottle, or direct of H. H. Warner & Co., 86, Clerkenwell-road, London, E.C.

ARK.—Try the Pyrmont Tablets and Ointment prepared by Bayley, 17, Cockspur-street, Pall-mall, London, S.W. They have a high reputation for curing the ailments named.

A. M.—Look to your teeth, and see that you brush them morning and night with Dr. Pierre's Tooth Powder.

PETER HAY.—The filter we recommend you to use is that made by Messrs. Howie, of Hurlford, Kilmarnock, N.B. It is an excellent apparatus.

NIBS.—Try the following mixture: Chlorodyne, one drachm; ipecacuanha wine, one drachm; syrup of squills, one drachm; glycerine to make up two ounces. Label: "A teaspoonful in a little water at intervals."

FANNY R.—Try Fairchild's Peptonizing Powders (Burroughs, Wellcome & Co.), and pre-digest the milk used therewith. Read the series of articles in HEALTH on "Infant Feeding," to be had from the Publisher.

NOPORE.—Try the following ointment, which in psoriasis has been used with good effect:—Chrysophanic acid, one drachm; lard, one ounce. Mix. Label: "A small piece, about the size of a pea, to be rubbed into each patch of the disease daily." In some cases in which the ointment has been applied to one side of the body only, the other extremities being wrapped in wool, the disease was wholly cured.

GIRLIE.—For greasiness of the skin try bathing the face morning and night with light white wine; or use the following lotion: Sulphate of zinc, two grains; compound tincture of lavender, eight minims; distilled water, one ounce. Apply two or three times daily.

A. MORTON.—Wash the skin regularly with Bayley's Spermaceti Soap and tepid water. If the skin itches, apply a little of the following lotion: Glycerine, an ounce and a half; bicarbonate of soda, one drachm. Mix. Label: "The Lotion—to be used as directed."

J. G. ROSS.—We only send addresses of medical men on receipt of stamped adressed envelope. Comply with this rule, and we shall be glad to advise you.

R. A.—The Sanitary Wool Underclothing we recommend is that made by Messrs. E. Ward & Co., of Bradford.

GEORGE R.—Apply to the French Hygienic Society, 56, Conduit-street, London, W., for their advice regarding hair-dyes. Try the Pommade Trichophile made by the society just named (see advt. in HEALTH). It is an excellent application for scurf.

STORKY.—Drink Vichy Water regularly and avoid much flesh food. Substitute for the tonic you are taking fifteen drops Fer Bravais in water, after your meals, thrice daily. The pain will disappear after your use of the Vichy Water.

MARCO POLO.—Avoid constipation by the use of Dahl's Cakes, advertised in our pages. We recommend Messrs. Ward's (of Bradford) Woollen Clothing, as cheap, satisfactory, and of pure quality.

NITA.—Guard firstly—by vegetable diet, and by taking twenty drops Cascara Cordial in water an hour before breakfast—against constipation. For the other ailment, use an injection of Quebascho (Brown & Co., 37, Farringdon-road, London, E.C.), adding one teaspoonful of this extract to a tumbler of hot water (allow the water to cool before using), and inject once or twice daily.

BRUTUS.—Send us stamped addressed envelope, and we will forward address of such to you. The symptoms may not be of importance, but a physician's opinion should be taken on these and the other matters you mention.

JOHN GREY.—See a good surgeon. There is no other cause advisable. If desired we can send you address of a competent surgeon on receipt of stamped addressed envelope.

M. X.—See advice regarding the hair given to "G. B. L. C." in the last number of HEALTH.

EGO.—Take twenty drops Cascara Cordial once or twice daily in water, an hour before food; diet to be light, and rest to be taken after meals. The Cascara Cordial will probably effect a cure, and thereafter let stewed fruits, Scott's Oat Flour, wholemeal bread, &c., form part of the food.

NURSE.—To make a Mustard Fomentation, the effects of which may often be greatly increased by the addition of a little mustard to the water, note the following directions, already published in our columns:—A tablespoonful of good ground mustard to the quart of hot water is a sufficient quantity. The mustard should be allowed to infuse for ten or fifteen minutes, so that the essential oil will be extracted by the water. When large fomentations are applied, it is economy to employ the following method: Instead of adding the mustard to the whole quantity of water used, prepare only a pint or a quart of mustard water. Wet a single thickness of flannel in the mustard water. Lay it over the part to which the application is to be made, and then apply over it a hot fomentation prepared in the usual way,

COUGHER.—The following is a safe and excellent cough mixture: Chlorodyne, one drachm; ipecacuanha wine, one drachm; syrup of squills, one drachm; glycerine to make up two ounces. Label: "A teaspoonful in a little water at intervals.

BINX.—Wash the parts regularly with Bayley's Soap and tepid water, and dust on, after washing, a little of the following powder: Powdered starch, two ounces; oxide of zinc, one ounce; powdered camphor, one drachm. Mix. Label: "The Dusting Powder: for outward use only."

SIMPLEX.—Superfluous hairs can only be satisfactorily removed by electrical means. Read the article on this subject in HEALTH, No. 149. We can send, if desired, on receipt of stamped addressed envelope, address of a specialist who removes hairs in this way.

G. O. M.—Use Dr. Pierre's Eau Dentifrice, after food, regularly, as a mouth wash, and brush the teeth night and morning with his Tooth Paste (see advertisement in our columns). These preparations will tend to arrest decay of the teeth.

FELIX.—Freckles may be removed by the following lotion: Sulpho-carbolate of lime, two ounces; glycerine and rose-water, of each, twenty-five ounces; alcohol, five ounces. Mix. Wash the skin twice in twenty-four hours, letting it remain damp with the lotion for half an hour.

OXONIAN.—If you wish a suitable remedy in the shape of a tonic and appetizing pill, the following will suit you: Extract of Barbadoes aloes, two grains; extract of nux vomica, half a grain; extract of gentian, a grain and a half. Make a pill. One such pill to be taken once a day, half an hour before meals. The druggist should make you a dozen such pills at a time.

G. W.—The tonic you name as having done you good should not be taken continuously. Take it at intervals of a week or ten days, gradually increasing such intervals. For the rest, be careful in your diet, as directed in the pamphlet to which you allude, and take a tepid sponge bath each morning. Plenty of fresh air and exercise and cheerful society will also aid in your cure. You have nothing seriously wrong with you.

CHARLES FORD.—Read the pamphlet recommended to "James L. P." in the present number for full information on the topic of which you write.

T. AVON.—See advice given to "James L. P." in the present number for full information. You are perfectly well. Avoid quacks, and read the pamphlet indicated.

ATHLETE.—The probability is that you are over-indulging in athletics. The symptoms you name are simply the result of over physical exertion. Limit your exercise, and see that you rest after your meals regularly, as a rule of health. Take five drops of Terebene on a piece of sugar after your meals when flatulence is present.

OLD SUBSCRIBER.—1. To limit draught, we prefer Hincks Bird's plan by raising the bottom sash three or four inches, and then resting it on a piece of wood which fills up the space. Air comes in gently between the two sashes without draught. 2. There is no need to visit the sea after such a course of waters. We have never heard of the custom as a thing sanctioned by medical science.

PERSPIRER.—Wash the parts regularly night and morning with Bayley's Spermaceti Soap, and thereafter dust on the parts a little of Woolley's Sanitary Rose Powder.

BIMBI.—The Pitkeathly Water can be used to dilute spirits with good effect. We advise you to drink it plain night and morning. Spirits in your case are harmful.

APPREHENSIVE NERVOUSNESS.

Debility, Rheumatism, Gout, Sciatica, Torpid Liver, Kidney Disorders, and every form of weakness may be speedily cured by wearing

HARNESS' ELECTROPATHIC BELT.

It generates a mild continuous current of Electricity.

Produces no Shock or Discomfort whatever. Testimonials, Pamphlet and Advice free, personally or by letter.

Write at once to **Mr. C. B. Harness,** Consulting Electrician, **MEDICAL BATTERY Co. Ltd.**

52, OXFORD ST. LONDON, W.

(Corner of Rathbone Place.)

TO MAKE A RICH PLUM CAKE.—Take half a pound of butter and half a pound of white sifted sugar, beat these with the hand well together to a cream, add four eggs, one at a time, and well beat each one with the butter and sugar; lightly mix in one pound of flour previously mixed with one teaspoonful of Borwick's Gold Medal Baking Powder; then lightly mix with the whole half a pound of sultanas; bake at once very thoroughly.

SCOTT'S EMULSION

OF PURE COD LIVER OIL

AND HYPOPHOSPHITES

Is three times as efficacious as the plain Oil.

It is almost as palatable as milk.

It does not nauseate or produce a loathing for food like the plain oil.

The Hypophosphites and Oil are so skilfully combined, that they are much more potent in building up flesh and strength than if taken separately, and **SCOTT'S EMULSION** is to-day the best remedial agent for the cure of

CONSUMPTION, CHRONIC COUGHS, BRONCHITIS, ANÆMIA, WASTING DISEASES OF CHILDREN and GENERAL DEBILITY.

Physicians universally prescribe it in preference to the plain oil, having seen its remarkable curative effects.

Any chemist can supply it at 2/6 and 4/6.

Established over Sixty Years.

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FROM THE PROPRIETOR OF

BEECHAM'S PILLS,

ST. HELENS, LANCASHIRE.

TO THE READERS OF THIS PAPER.

DO YOU DOUBT

BEECHAM'S PILLS have the Largest Sale of any Patent Medicine in the World? if so, read the remarks gathered from letters just received from some of the most prominent members of the Drug Trade. I have so far refrained from publishing Testimonials from private individuals (although I am greatly indebted to thousands who have thanked me for the benefits derived from my Pills), as I have found unprincipled persons offering to testify anything if paid for so doing, but the following will convince the most sceptical that my Advertisement is not exaggerated:—

From Buxton.
"My experience amply confirms your printed statement to the effect that your Pills have the largest sale of any Patent Medicine extant."

From Beverley.
"Your Pills certainly take the lead amongst Patents, as their sale is double that of any other.

From Burton-on-Trent.
"I am selling more Beecham's Pills than any other Patent Medicine. This I lay to their actual worth.'

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"Your Pills are beating all others totally now.'

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"I find your Pills sell better than any other Patent Medicine."

From Birkenhead.
"I sell more of your Pills than any other Patent Medicine."

From Cullen.
"During the last 12 months, the sale of your Pills has increased very considerably, in fact, they are the most popular family Pill of any patent preparative we sell."

From Canterbury.
"Your Pills command premier place over all other Pills in this neighbourhood."

From Dovercourt.
"Your Pills are having the largest sale here of any Patent Medicine I have sold during the past 30 years."

From Dawlish.
"We sell more of your Pills than all others put together.'

From Dundee.
"I sell twenty boxes of your Pills for one of any other maker."

From Epping.
"No other Pills have a tithe part of the sale with us that yours have."

From Elland.
"I sell more of your Pills than any other kind, and hear them well spoken of."

From Great Horton.
"I sell more of 'Beecham's Pills than all other patents put together."

From Grangemouth.
"Your Pills have a larger sale than any other Patent."

From Gravesend.
"The sale of your Pills, I find, far exceeds any other Patent."

From Hessle, Hull.
"I sell more Beecham's Pills than I have *ever sold* of any other medicine in my experience, and have heard more of their good effects also. There is an increasing demand."

From Haddington.
"The sale of your Pills far surpasses that of all others."

From Ilkeston.
"Your Pills have a very good sale in this town, they have taken the lead of all others."

From Kidderminster.
"I sell a good quantity of your Pills, in fact more than any other kind of Patent Medicine."

From London (Walham Green).
"We have a very large sale of your Pills, and may say the largest of any patent pills."

From Milwall, E.
"Your Pills have the greatest sale of anything I keep in stock."

From Holloway Road, N.
"We are selling more of your Pills than any other kind."

From Islington, N.
"I have a large sale for your Pills, in fact I find them very well spoken of in this neighbourhood."

From Liverpool.
"We sell more of Beecham's Pills than ever. We have scores of regular customers for them, which proves, if proof is required, that the Pills are what the Proprietor claims them to be."

From Leicester.
"I sell more of your Pills than any other advertised."

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"Have a very large sale for your Pills, I might say, as much as all other patents put together."

From Oldham.
"We do a considerable trade in your Pills, in fact they are the best selling Pills that we keep."

From Plumstead, Kent.
"The sale of Beecham's Patent Pills largely increased during the past twelve months. They are much praised for their efficacy."

From Rhymney.
"I find the sale of your Pills larger than that of any other Patent Medicine."

From Selby.
"I find 'Beecham's Pills' the most saleable Patent Medicine of the present day."

From Saffron Walden.
"I sell a large quantity of your Pills, they have outstripped others."

From Selkirk.
"Of all Patent Medicines I find Beecham's Pills the most saleable."

These letters, with hundreds more bearing similar proof that **BEECHAM'S PILLS** stand without a Rival, are in my possession, the names and addresses being withheld, with the object of not rendering the writers unpopular among less successful Medicine Proprietors.

THOMAS BEECHAM.

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